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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/748,396	12/30/2003	Michael F. Weber	57654US002	7558

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EXAMINER

PRITCHETT, JOSHUA L

ART UNIT PAPER NUMBER

2872

DATE MAILED: 06/27/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

H.A

**Office Action Summary**

Application No.

10/748,396

Applicant(s)

WEBER, MICHAEL F.

Examiner

Joshua L. Pritchett

Art Unit

2872

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
 Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-8 and 10-13 is/are rejected.
- 7) ☒ Claim(s) 9 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>6/05, 5/04</u> . | 6) <input type="checkbox"/> Other: ____.  |

## **DETAILED ACTION**

### ***Information Disclosure Statement***

The information disclosure statement filed May 2004 fails to comply with 37 CFR 1.98(a)(2), which requires a legible copy of each cited foreign patent document; each non-patent literature publication or that portion which caused it to be listed; and all other information or that portion which caused it to be listed. It has been placed in the application file, but the information referred to therein has not been considered. The references for foreign patents or non-patent literature that are not present in the application have been crossed through on the PTO-1449. If the applicant wishes to have these references considered the applicant is advised to submit a copy of each of the references with a response to this office action.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Rancourt (US 4,229,066).

Rancourt disclose a multilayer reflective film (Figs. 1-4) comprising a plurality of optical repeat units, at least some of the optical repeat units comprising individual layers A, B, C, D arranged in a six layer sequence CACDBD (Figs. 1-4; col. 3 lines 23-46; col. 4 lines 4-25), or a cyclic permutation thereof, the A and B layers being optically thicker than the C and D layers (Figs. 1-4) and where the individual layers have refractive indices that satisfy the relationship  $n_A \geq n_D > n_C > n_B$  (Figs. 1-4).

Claims 1, 3, 4, 6, 7, 10, 12 and 13 are rejected under 35 U.S.C. 102(e) as being anticipated by Eisenkramer (US 2004/0145803).

Regarding claim 1, Eisenkramer disclose a multilayer reflective film (Fig. 3) comprising a plurality of optical repeat units, at least some of the optical repeat units comprising individual layers A (M2), B (SiO<sub>2</sub>), C (MgF<sub>2</sub>), D (M2) arranged in a six layer sequence C (14) A (13) C (12) D (11) B (10) D (9) (Fig. 2), or a cyclic permutation thereof, the A and B layers being optically thicker than the C and D layers (Fig. 2; Table A) and where the individual layers have refractive indices that satisfy the relationship  $n_A \geq n_D > n_C > n_B$ . M2 is a Merck product known to have a refractive index of 1.7, SiO<sub>2</sub> is known to have a refractive index of 1.4, and MgF<sub>2</sub> is known to have a refractive index of 1.4.

Regarding claim 3, Eisenkramer discloses at least one of the individual layers is birefringent and wherein the refractive indices are measured along an axis in the plane of the film at a design wavelength (para. 0053).

Regarding claim 4, Eisenkramer discloses the individual layers have refractive indices measured along an axis perpendicular to the plane of the film that are substantially matched (para. 0053).

Regarding claim 12, Eisenkramer discloses the layers are composed of inorganic materials (para. 0055).

Regarding claim 13, Eisenkramer discloses the optical repeat units are arranged to have a thickness profile that changes along a thickness axis of the film (Fig. 2).

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2, 5-8, 10 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rancourt (US 4,229,066).

Regarding claim 2, Rancourt teaches the invention as claimed but lacks reference to the isotropic nature of the refractive indices. It is well known in the art to have multilayer reflectors

Art Unit: 2872

have materials with refractive indices that are not dependent upon pressure. Official Notice is taken. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have the refractive indices of the Rancourt materials isotropic as is known in the art for the purpose of allowing the reflector stack to proper function in a wide range of environments.

Regarding claim 5, Rancourt teaches the invention as claimed but lacks reference to the use of a half wave layer. It is extremely well known in the art to have a layer in a reflector stack have an optical thickness of one half of a wavelength. Official Notice is taken. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have the Rancourt invention include a half wave layer as is known in the art for the purpose of changing the phase of the light propagating through the reflector stack.

Regarding claim 6, Rancourt teaches the design wavelength is between 700 and 2000 nm (col. 3 lines 50-56).

Regarding claim 7, Rancourt teaches the thickness and refractive indices of the layers are selected to suppress reflection at least at wavelength of half, third and quarter of the design wavelength (Figs. 6 and 7).

Regarding claims 8 and 10, Rancourt teaches the refractive indices satisfy the relationship  $n_A > n_D > n_C > n_B$  and  $n_A = n_D > n_C > n_B$  (col. 3 lines 23-46; col. 4 lines 4-25). Rancourt teaches that the materials in the  $AR_2$  stack may be the same as the materials in the high and low layers or the materials may be different. A listing of possible materials is given and one of ordinary skill would be able to choose the materials to satisfy the given expressions.

Regarding claim 11, Rancourt teaches the invention as claimed but lacks reference to the use of polymers. It is extremely well known in the art to use polymers in reflector stacks.

Art Unit: 2872

Official Notice is taken. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have the Rancourt invention include polymers as is known in the art for the purpose of selectively reflecting certain design wavelengths.

### *Allowable Subject Matter*

Claim 9 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: the prior art of record fails to teach or suggest a combination of materials that satisfies the claimed equation.

### *Conclusion*

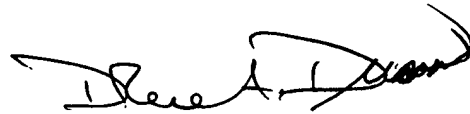
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joshua L. Pritchett whose telephone number is 571-272-2318. The examiner can normally be reached on Monday - Friday 7:00 - 3:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Drew A. Dunn can be reached on 571-272-2312. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 2872

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JLP



**DREW A. DUNN**  
**SUPERVISORY PATENT EXAMINER**